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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/895,303	06/29/2001	Paul F. Crowder	G&C 122.6-US-U1	2396

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EXAMINER

ZAHN, JEFFREY N

ART UNIT PAPER NUMBER

2828

DATE MAILED: 09/26/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Applicant N .

09/895,303

Examiner

Jeffrey N Zahn

Applicant(s)

CROWDER ET AL.0

Art Unit

2828

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.


- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 11 July 2003.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,2,4,6-21,35-37,39,41-56,70-72,74,76-91 and 105-111 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,4,6-21,35-37,39,41-56,70-72,74,76-91 and 105-111 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

  
PAUL IP  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2800

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

**DETAILED ACTION**

***Claim Rejections - 35 USC § 112***

**Claims 1,2,4,6-21,35-37,39,41-56,70-72,74,76-91 and 105-111 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.**

Specifically, it is unclear/vague 1) what comprises the SGDBR laser as claimed; 2) the configuration of the front and back mirrors, ie. are they DBR's ?; and 3) the relationship of the gain section to the remaining sections of the laser and if the claimed invention includes an active region separate from the gain section. Because of these issues, the operation/use of the claimed DSP using a numerical minima search to control the mirror's is indefinite.

Regarding Claims 4 and 6-21, in addition to the discussion above, it is unclear/vague how the DSP is interrelated and functions with the other elements of the claim and 1) dithers the front and back mirror, 2) uses a least mean squares estimator, 3) uses a block LMS algorithm, etc..

Regarding Claims 106-111, in addition to the discussion above, it is unclear/vague where the claimed SOA is located within the SGDBR and how it is interrelated within the SGDBR structure.

Note: For purposes of examination, the claims are given the broadest reasonable interpretation; issues of indefiniteness, as discussed above, lessen the patentable weight of claimed elements/elemental structural relationships indicated as indefinite.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1,2,4,6-21,35-37,39,41-56,70-72,74,76-91 and 105-111 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sarlet et al. (Wavelength and Mode Stabilization of Widely Tunable SG-DBR and SSG-DBR Lasers) in view of JP1108572A.

Regarding Claim 1, 35, 36, 70, 71 and 105-111, Sarlet et al. discloses a SGDBR controller that includes:

a controller (Fig. 2) for providing separate inputs to the laser including as front mirror current controlling a front mirror and a back mirror current controlling a back mirror to control the laser (Fig 2; see also page 1351-1352, section Voltage feedback Scheme); and

a voltage monitor, (Fig 2; see also page 1351-1352, section Voltage feedback Scheme) coupled to a gain section of the laser for monitoring a gain voltage of the gain section and providing input of the gain voltage to the controller;

wherein the controller controls the front mirror current and the back mirror current to minimize the voltage monitored from the gain section of the laser. (Fig 2; see also page 1351-1352, section Voltage feedback Scheme)

JP11085728A teaches the use of a numerical minima search to determine a minimum value of a variable in a stable fashion; it is inherent of JP11085728A, the search is performed with a DSP. It would have been obvious to one of ordinary skill in the art to modify Sarlet et al. to include the DSP and minima search to stably obtain and control the voltage values of the gain section of the laser claimed.

Regarding Claims 2,4,6-21, 35-37,39,41-56, 72,74,and 76-91, Sarlet et al. discloses 1) the mirror currents aligned with a cavity mode and a DSP as claimed. (Fig 2; see also page 1351-1352, section Voltage feedback Scheme)

### ***Response to Arguments***

Applicant's arguments filed 11 July 2003 have been fully considered but they are not persuasive. Specifically, the Applicant argues that the 35 U.S.C. §112, para. 2 rejections, as related to indefiniteness of the SGDBR claimed is traversed because the Applicant does not regard the SGDBR laser as subject matter, which the Applicant regards as the invention and SGDBR lasers are known in the art.

These arguments are not persuasive because 35 U.S.C. §112, para. 2 requires the Applicant establish the metes and bounds of the claimed invention to one of ordinary skill in the art. The standard is for one of ordinary skill in the art; not necessarily what the Applicant regards as the invention if the invention is claimed in a way that makes the claimed invention indefinite. In addition, variations of a SGDBR laser are known in the art. However, the Applicant has claimed a controller/method for controlling an SGDBR in the preamble of the claims without reciting the necessary

structure and structural relationships to establish the SGDBR laser being controlled. Consequently, it is unclear/vague how the SGDBR laser is being controlled.

The Applicant argues that Sarlet et al. lacks any discussion about employing a digital signal processor using a minima search as presently claimed. As discussed above regarding 35 U.S.C. §112, para. 2, issues of indefiniteness related to claims reduce the patentable weight of the claimed elements. It is inherent of Sarlet et al. that an analog circuit will be used to condition/monitor the gain voltage. (Fig 2; see also page 1351-1352, section Voltage feedback Scheme) In addition, the voltages are read out by a PC before updating the drivers. The use of a PC requires, inherently, a conversion to digital format. (Fig 2; see also page 1351-1352, section Voltage feedback Scheme). Accordingly, Sarlet et al. discloses controls/voltage monitoring for a SGDBR laser that arguably the Applicant's claims read on without more definite claim language.

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

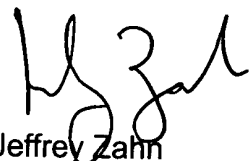
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of


the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrey N Zahn whose telephone number is 703-305-3443. The examiner can normally be reached on M-F: 8:30-5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Ip can be reached on 703-308-3098. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

  
Jeffrey Zahn  
9/08/03

  
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